a manner that at least some of the electrically charged particles drift toward the readout device (19), the converter device (22) being of charge-transparent design and being arranged in the detector housing (10) in such a manner that the drift field passes through at least part of this device.

2. The detector as claimed in claim 1, in which the converter device (22) has a multiplicity of passages (32), for the electrically charged particles.

3. The detector as claimed in claim 2, in which the passages (32) have a minimum diameter of between 10 μm and 1000 μm, and a minimum spacing of 10 μm to 500 μm.

4. The detector as claimed in claim 1, which comprises a multiplicity of the converter devices (22) arranged in cascade form.

5. The detector as claimed in claim 1, in which a region of the converter device (22) which is active in the conversion is of large-area design and is arranged substantially perpendicularly in the drift field.

6. The detector as claimed in claim 1, in which the device (18) for generating a drift field has a large-area structured drift electrode (18) to generate the drift field between the drift electrode and the readout device (19).

7. The detector as claimed in claim 1, in which the converter device (22) comprises a first conductive layer (28) and a second conductive layer (30), which are electrically insulated from one another by an insulator layer (26) arranged between them, and at least one converter layer (24), which is arranged on at least one of the first conductive layer (28) and the second conductive layer (30).

8. The detector as claimed in claim 7, in which the first conductive layer (28) and the second conductive layer (30) are electrically connected to a device for generating a converter field.

9. The detector as claimed in claim 8, in which the converter layer (24) is a neutron converter layer which contains at least one of lithium-6, boron-10, gadolinium-155, gadolinium-157 and uranium-235.

10. The detector as claimed in claim 9, in which the converter layer (24) has a layer thickness of from 0.1 μm to 10 μm for a neutron converter layer substantially consisting of boron-10, between 0.5 μm and 3 μm, the first and second conductive layers have a layer thickness of from 0.1 μm to 20 μm, and the insulator layer has a layer thickness of from 10 μm to 500 μm.

11. A converter device (22) for a detector for detecting electrically neutral particles, having a first conductive layer (28) and a second conductive layer (30), which are electrically insulated from one another by an insulator layer (26) arranged between them, and at least one solid converter layer (24) which is arranged on at least one of the first conductive layer (28) and the second conductive layer (30), the converter device (22) having a multiplicity of passages (32) for electrically charged particles.

12. The converter device as claimed in claim 11, which contains a neutron converter material selected from the group consisting of lithium-6, boron-10, gadolinium-155, gadolinium-157 and uranium-235.

13. A method for producing a converter device (22) for a detector for detecting electrically neutral particles comprising the following steps:

- providing an insulator layer (26) which is arranged between two electrically conductive layers (28, 30), so that the electrically conductive layers (28, 30) are electrically insulated from one another, and

- providing a converter layer (24).

14. A detection method for detecting electrically neutral particles comprising the following steps:

- trapping the electrically neutral particles which are to be detected using at least one converter device (22) which generates conversion products when the neutral particles are absorbed;

- generating electrically charged particles in a counting gas by means of the conversion products;

- diverting the electrically charged particles in an electrical drift field to a readout device (19), at least some of the electrically charged particles being passed through the charge-transparent converter device (22) through a multiplicity of passages (32), which are arranged in the form of a matrix, in the converter device (22); and

- detecting the electrically charged particles in the readout device (19).

## REMARKS

The above-identified application was filed in the German language. An English language translation is being filed concurrently with this Preliminary Amendment. It is now clear to counsel that the original claims included multiple dependencies and alternative claim language. This Preliminary Amendment is entered to eliminate the multiple dependency and to thereby avoid the U.S. government surcharge for applications